

## AMENDMENTS TO THE CLAIMS

**Claims 1 to 19** (cancelled)

**Claim 20** (currently amended)

A pharmaceutical composition, comprising starch granules containing at least one fusion fusion polypeptide containing:

In the N terminal position:

- the peptide sequence of SEQ ID No: 3 ~~corresponding to the~~ comprising the granule bound starch synthase GBSSI of *Chlamydomonas reinhardtii* in the form of pre-protein of 708 amino acids, or the sequence SEQ ID No: 5 comprising ~~corresponding to~~ the GBSSI of *Chlamydomonas reinhardtii* in the form of mature protein of 651 amino acids, said sequences being encoded by nucleotide sequences SEQ ID No: 2, and 4 respectively, ~~or by a nucleotide sequence derived by degeneration of the genetic code of the aforementioned nucleotide sequences, and coding for the aforementioned pre-GBSSI or GBSSI of *Chlamydomonas reinhardtii*,~~

~~or a fragment of the GBSSI of *Chlamydomonas reinhardtii* represented by SEQ ID No: 3, in which the amino acid of the amino terminal end corresponds to that located in one of the positions 1 to 58 of SEQ ID No: 3 and in which the amino acid of the carboxy terminal end corresponds to that located in one of the positions 495 to 708 of SEQ ID No: 3,~~

- and, in the C-terminal position, a peptide or polypeptide of interest, the C-terminal part of the amino acid sequence of the GBSSI ~~or fragment thereof mentioned above~~, thus being bound to the N-terminal part of the peptide sequence of interest,

the said fusion polypeptide being encoded by a recombinant nucleotide sequence containing in the 5' → 3' direction, a nucleotide sequence coding for said

*Chlamydomonas reinhardtii* GBSSI ~~or fragment thereof~~,

the said nucleotide sequence coding for this enzyme being positioned upstream of a nucleotide sequence coding for the peptide or polypeptide of interest, the peptide of interest in the said fusion polypeptides possessing a defined therapeutic effect.

**Claim 21 (currently amended)**

A pharmaceutical composition according to claim 20, ~~wherein fragment of the GBSSI of *Chlamydomonas reinhardtii* represented by SEQ ID No: 3 is:~~ containing

- the sequence SEQ ID No: 7 ~~corresponding to a fragment of 438 amino acids of the peptide sequence of the GBSSI of *Chlamydomonas reinhardtii*,~~

~~or the sequence SEQ ID No: 9 corresponding to a fragment of 531 amino acids of the peptide sequences of the GBSSI of *Chlamydomonas reinhardtii*,~~

said sequence being encoded by nucleotide sequences SEQ ID Nos: 6 and 8, respectively, ~~or by a nucleotide sequence derived by degeneration of the genetic code of the aforementioned nucleotide sequences, and coding for the aforementioned GBSSI fragments of *Chlamydomonas reinhardtii*.~~

**Claim 22**(currently amended)

A pharmaceutical composition according to claim 20 wherein the peptide or polypeptide of interest is selected from:

- ~~these encoding~~ biologically active peptides, ~~especially peptides of therapeutic interest or that can be used in the agricultural and food industry, or~~
- ~~these encoding~~ enzymes that are able to transform starch, such as enzymes that interact with  $\alpha$ -glucans including various hydrolases, phosphorylases,  $\alpha$ -1,4-glucanotransferases, branching enzymes, amylases, ~~and especially heat resistant hydrolases obtained from extremophiles such as archaeobacteria that are active at temperatures above 40°C.~~

**Claim 23** (currently amended)

A pharmaceutical composition according to claim 20 wherein the fusion polypeptide ~~contains~~ comprises a cleavage site positioned between the starch synthase, and the polypeptide of interest.

**Claim 24** (currently amended)

A pharmaceutical composition according to claim 20, wherein the diameter of the starch granules being between about 0.1  $\mu\text{m}$  and ~~several tens of~~ 10  $\mu\text{m}$ , and the proportion by weight of the fusion polypeptides in these granules being between about 0.1% and 1%.

**Claim 25** (currently amended)

A pharmaceutical composition comprising at least one fusion polypeptide containing:

- in the N-terminal position:

\* ~~the peptide sequence SEQ ID No: 3 corresponding to the granule bound starch synthase GBSSI of *Chlamydomonas reinhardtii*, in the form of pre-protein of 708 amino acids, or the sequence SEQ ID No: 5 corresponding to the GBSSI of *Chlamydomonas reinhardtii*, in the form of mature protein of 651 amino acids, said sequence being encoded by nucleotide sequences SEQ ID Nos: 2 and 4, respectively, or by a nucleotide sequence derived by degeneration of the genetic code of the aforementioned nucleotide sequences, and coding for the aforementioned pre-GBSSI or GBSSI of *Chlamydomonas reinhardtii*,~~

~~\* or a fragment of the GBSSI of *Chlamydomonas reinhardtii*, represented by SEQ ID No: 3, in which the amino acid of the amino terminal end corresponds to that located in one of the positions 1 to 58 of SEQ ID No.: 3, and in which the amino acid of the carboxy terminal end corresponds to that located in one of the positions 195 to 708 of SEQ ID No: 3,5~~

and, in the C-terminal position, a peptide or polypeptide of interest,  
the C-terminal part of the amino acid sequence of the GBSSI ~~or fragment thereof~~  
~~mentioned above~~, thus being bound to the N-terminal part of the peptide sequence  
of interest,  
the said fusion polypeptide being encoded by a recombinant nucleotide sequence  
containing in the 5' → 3' direction, a nucleotide sequence coding for said  
*Chlamydomonas reinhardtii* GBSSI ~~or fragment thereof~~,  
the said nucleotide sequence coding for this enzyme being positioned upstream of  
a nucleotide sequence coding for a peptide or polypeptide of interest, the peptide  
of interest in the said fusion polypeptides possessing a defined therapeutic effect.

**Claim 26 (currently amended)**

A pharmaceutical composition according to claim 25 containing wherein the  
~~fragment of GBSSI of *Chlamydomonas reinhardtii*, represented by SEQ ID No: 3 is:~~

- . the sequence SEQ ID No: 7 ~~corresponding to a fragment of 438 amino acids of~~  
~~the peptide sequence of the GBSSI of *Chlamydomonas reinhardtii*, or~~
- the sequence SEQ ID No:9 ~~corresponding to a fragment of 531 amino acids of~~  
~~the peptide sequence of the GBSSI of *Chlamydomonas reinhardtii*,~~
- said sequences being encoded by nucleotide sequences SEQ ID Nos: 6 and 8  
respectively, ~~or by a nucleotide sequence derived by degeneration of the~~  
~~genetic code of the aforementioned nucleotide sequences, an coding for the~~  
~~aforementioned GBSSI fragment of *Chlamydomonas reinhardtii*.~~

**Claim 27** (currently amended)

A pharmaceutical composition according to claim 25 wherein the peptide or polypeptide of interest is selected from:

- ~~these encoding~~ biologically active peptides, ~~especially peptides of therapeutic interest or that can be used in the agricultural and food industry, or~~
- ~~these encoding~~ enzymes that are able to transform starch, such as enzymes that interact with  $\alpha$ -glucans including various hydrolases, phosphorylases,  $\alpha$ -1,4-glucanotransferases, branching enzymes, amylases, ~~and especially heat-resistant hydrolyases obtained from extremophiles such as archaebacteria that are active at temperatures above 40°C.~~

**Claim 28** (currently amended)

A pharmaceutical composition according to claim 25 wherein the fusion polypeptide comprises ~~contains~~ a cleavage site positioned between the starch synthase, and the polypeptide of interest.

**Claim 29** (new)

A pharmaceutical composition according to claim 22, wherein the biologically active peptides are peptides of therapeutic interest or peptides that can be used in the agricultural and food industry.

**Claim 30 (new)**

A pharmaceutical composition according to claim 22, wherein the enzymes that are able to transform starch are heat-resistant hydrolases obtained from extremophiles such as archaebacteria that are active at temperatures above 40°C.

**Claim 31 (new)**

A pharmaceutical composition according to claim 27, wherein the biologically active peptides are peptides of therapeutic interest or peptides that can be used in the agricultural and food industry.

**Claim 32 (new)**

A pharmaceutical composition according to claim 27, wherein the enzymes that are able to transform starch are heat-resistant hydrolases obtained from extremophiles such as archebacteria that are active at temperatures above 40°C.